



Environmental Response Management Application

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NOAA's Office of Response and Restoration

5th Symposium on Impacts of an Ice-Diminishing
Arctic on Naval and Maritime Operations
July 18th, 2013, Washington, DC



Presentation Outline

- What is the Environmental Response Management Application (ERMA)?
 - Purpose, design, and example data sets
 - Recent roles
- Arctic Activities and Partnerships
 - Incorporating Arctic Communities' Data
 - Canadian Partnerships and Activities
 - Arctic Council's Emergency Prevention, Preparedness and Response Working Group
- Upcoming Plans



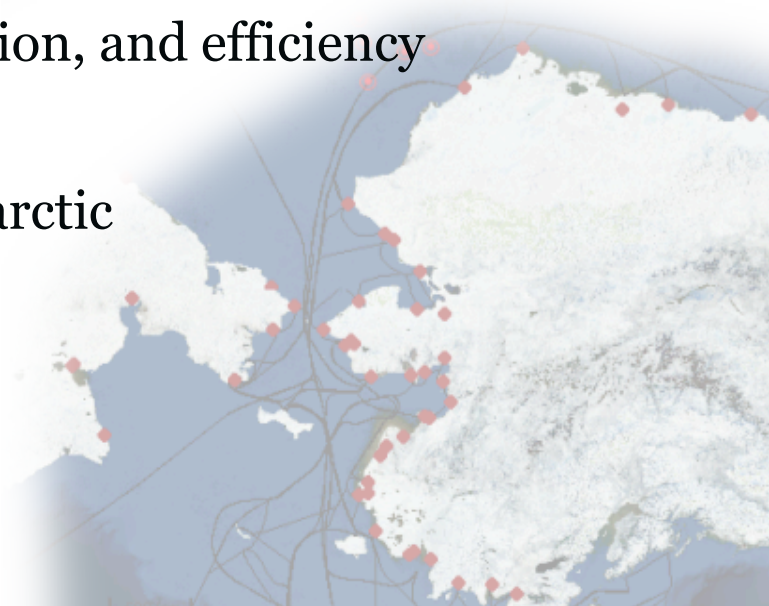
Environmental Response Management Application (ERMA®)

Functions

- Web-based mapping tool
- Analyze and visualize environmental information
- Prepare for, respond to, assess impacts from hazardous incidents or conditions
- Increases communication, coordination, and efficiency

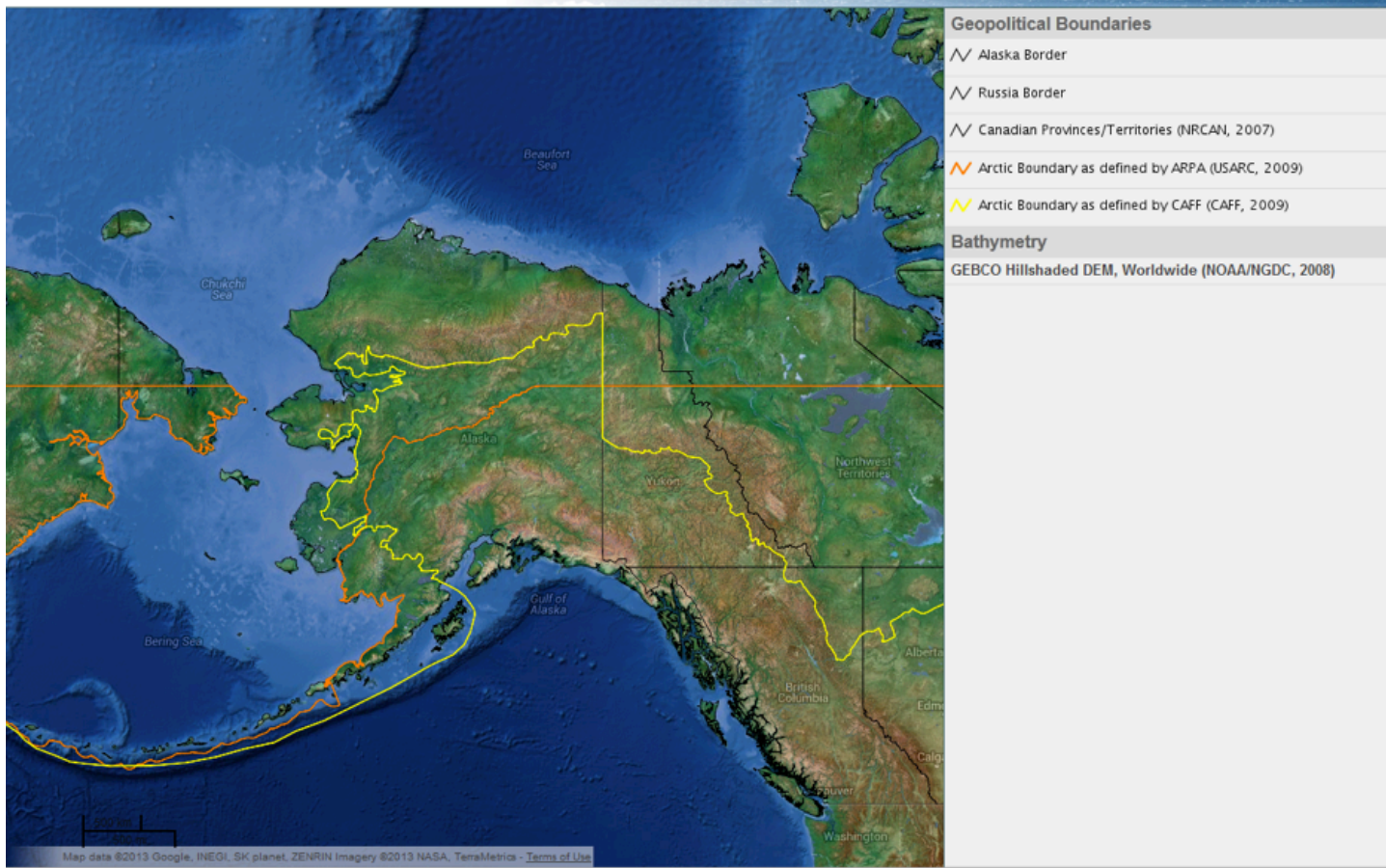
Website

- Arctic: <https://www.erma.unh.edu/arctic>



Geopolitical boundaries

ERMA | Environmental Response Management Application
Arctic



Map data ©2013 Google, INEGI, SK planet, ZENRIN Imagery ©2013 NASA, TerraMetrics - Terms of Use

Scale: 1: 28M Zoom Level: 4 Location: 58.35565°, -119.91576°

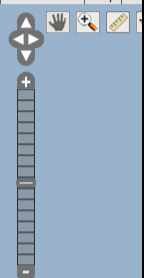


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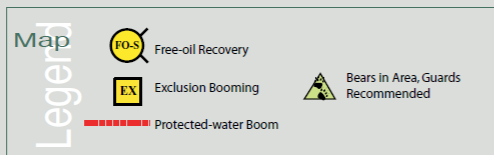
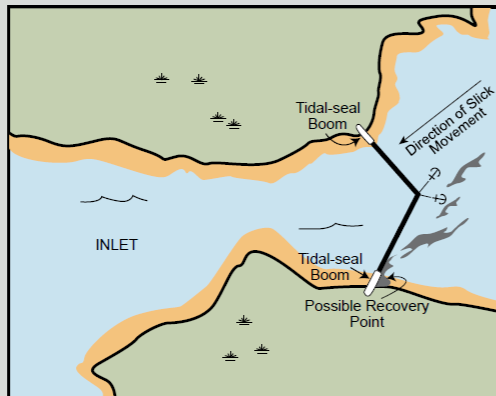
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Geographic Response Plans

ERMA
Information Help Re



An example of the *Exclusion Booming Tactic*. Actual deployment should be adjusted for local conditions.



Aerial photography of this area is unavailable at this time, but may be included as it becomes available.

Geographic Response Strategies for Northwest Arctic Subarea, Northern Zone

Eschscholtz Bay/Buckland River, NWA-N18

Center of map at 66° 14'5" N Lat., 161° 2'19" W Lon.



This is not intended for navigational use.

Logout

Query Tools AOI Labels Zoom Download Print

Contingency Planning Regions (ADEC)

Alaska Sound
n Alaska
nd
s
Arctic
aska
lands

Response Plan Maps - NW Arctic (2011)

Center Point

deg	lon_min	lon_sec	lat_deg	lat_min	lat_sec
2	19	66	14	5	

clean

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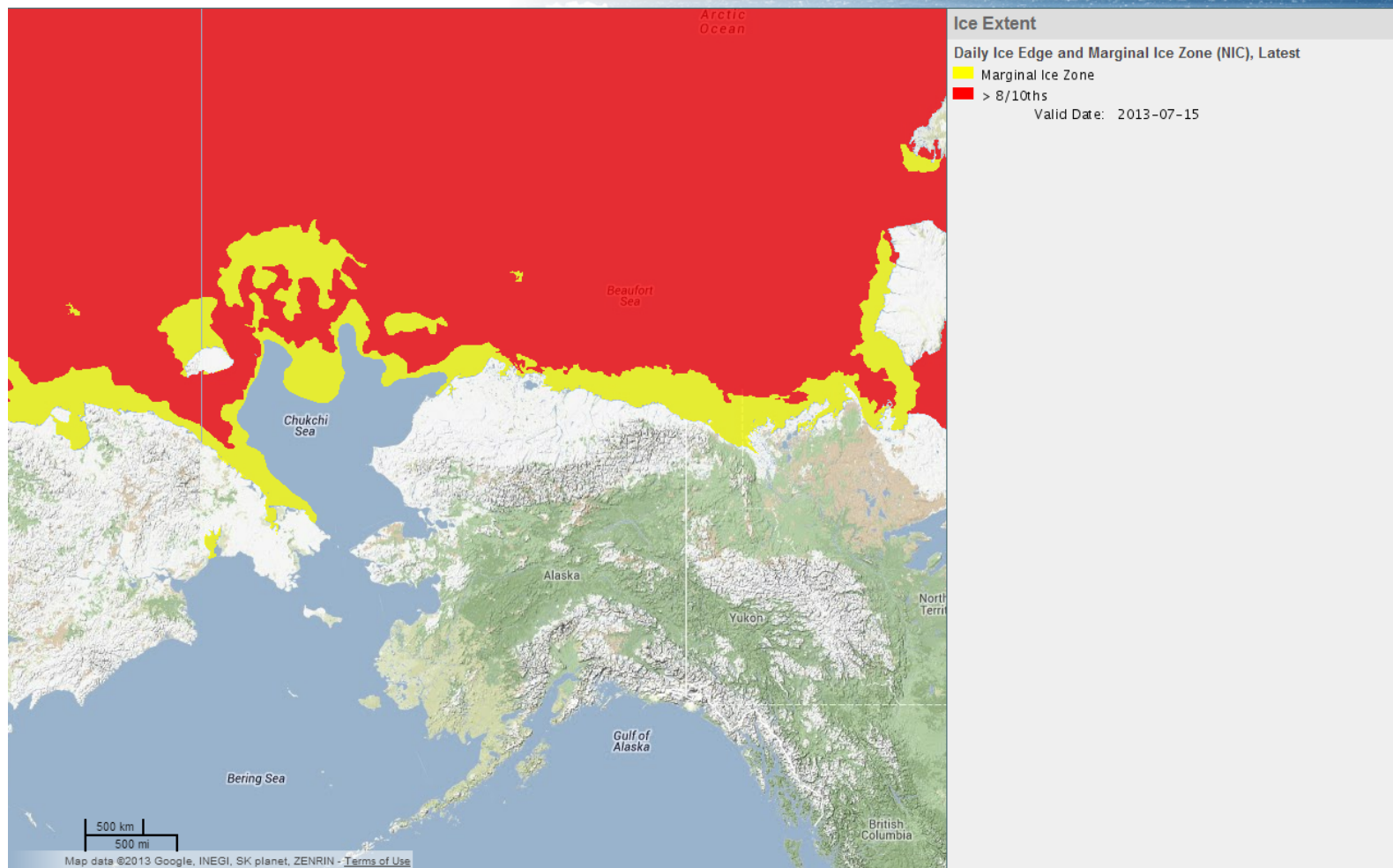
June 28, 2011

DRAFT This tactic map is a working draft being used to develop a Geographic Response Strategy at this location. The tactics represented here have not been approved by the Subarea Committee and should not be considered final. If you have questions or comments please contact us by email at contact@nukaresearch.com.

NUKA Research & Planning Group, LLC.

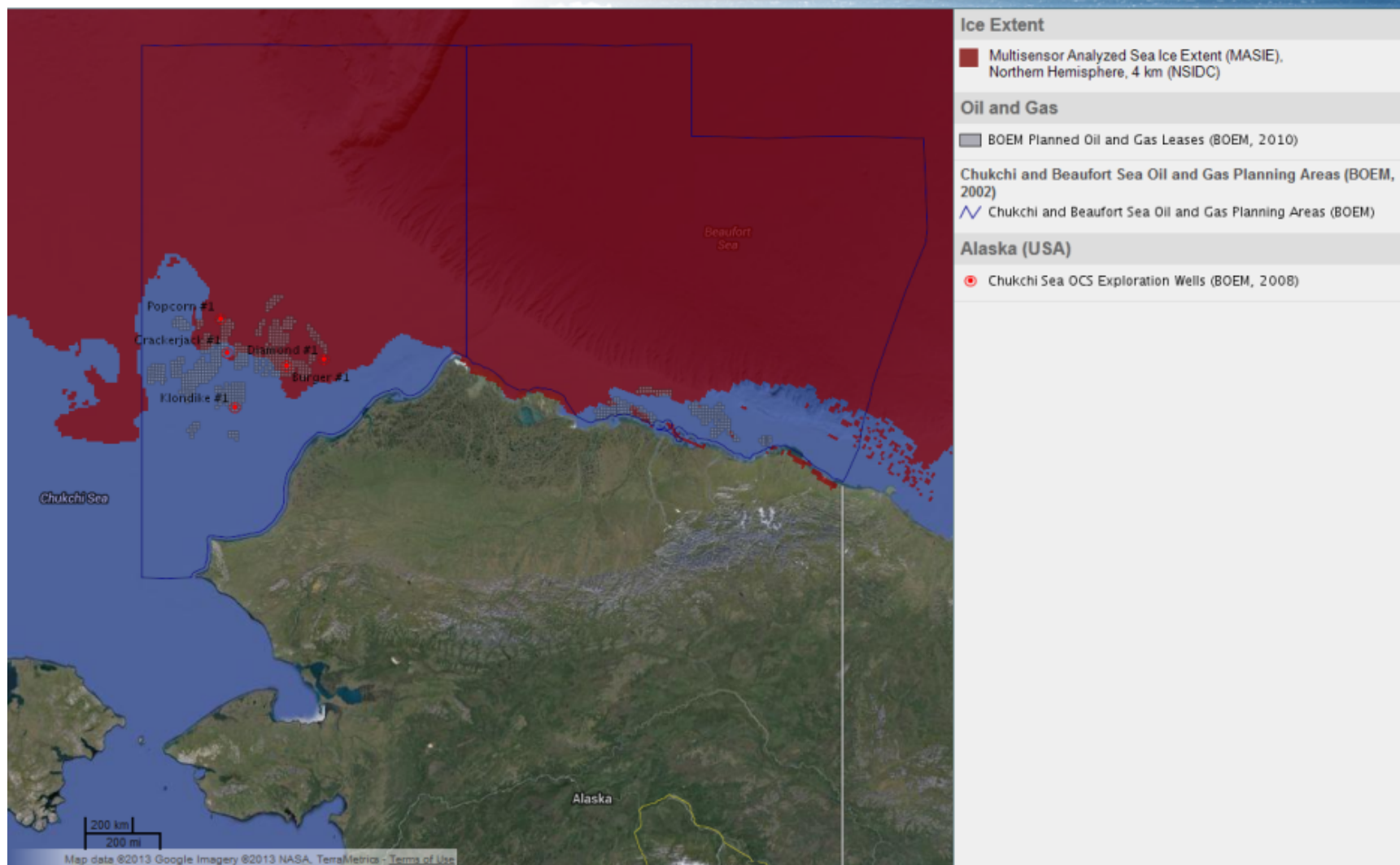
National Ice Center: Ice Extent Feeds

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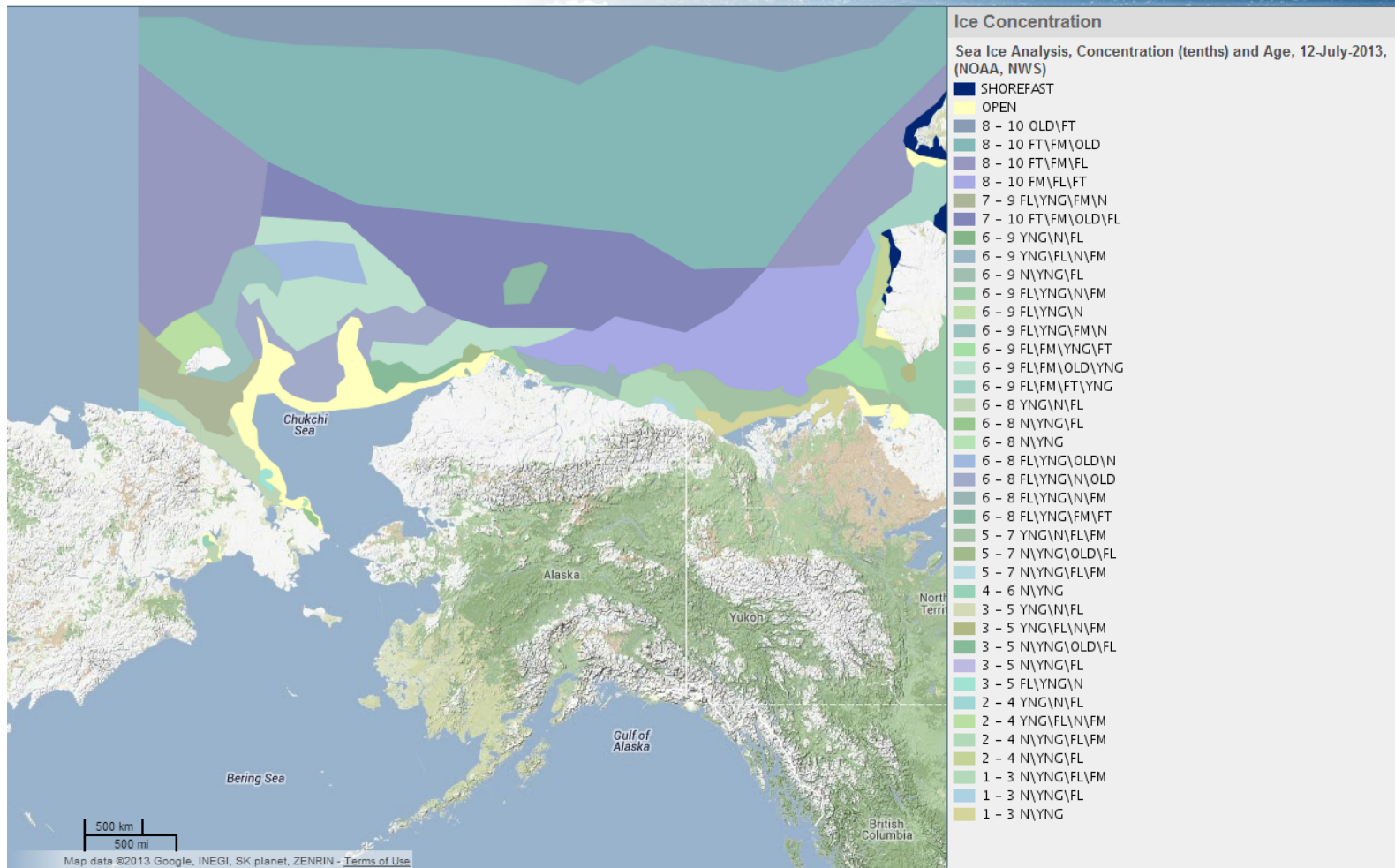
NSIDC Multisensor Analyzed Sea Ice Extent

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National Weather Service: Ice Concentration

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Shipping Routes & Incident Locations

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Layers Legend Query Tools AOI Labels Zoom Download Print

Transportation
 US Shipping Routes
☒ US Shipping Routes

Hazards
Arctic Marine Shipping Assessment (AMSA) Incident Locations

- Collision
- Damage to Vessel
- Fire / Explosion
- Grounded
- Machinery Damage / Failure
- Sunk / Submerged
- Miscellaneous

Identify

Arctic Marine Shipping Assessment (AMSA) Incident Locations

gid	source	type	date	latitude	longitude	lives_lost	fuel_spill	total_loss	ice_damage	primary_re	descrip
123	TSB	PASSENGER SHIP	1998-08-22	64.675	-168.258333	NO	NO	NO	NO	DAMAGE TO VESSEL	CRACK IN BILGE SH PLATING 8 WATER BALLAST TANK PO TANK BEI MONITOR VISUALLY EVERY HOUR TO

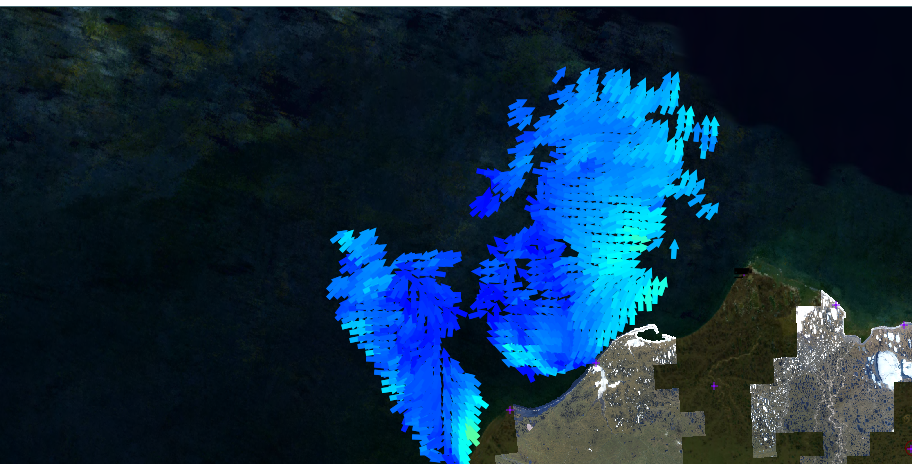
Map data ©2011

↑N Scale

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Done



Imagery & Remote Sensing

Alaska Imagery - Best Data Available (Alaska Mapped, SDMI)

AK True Color Orthos 2.5-m, (SDMI, GINA)

Currents

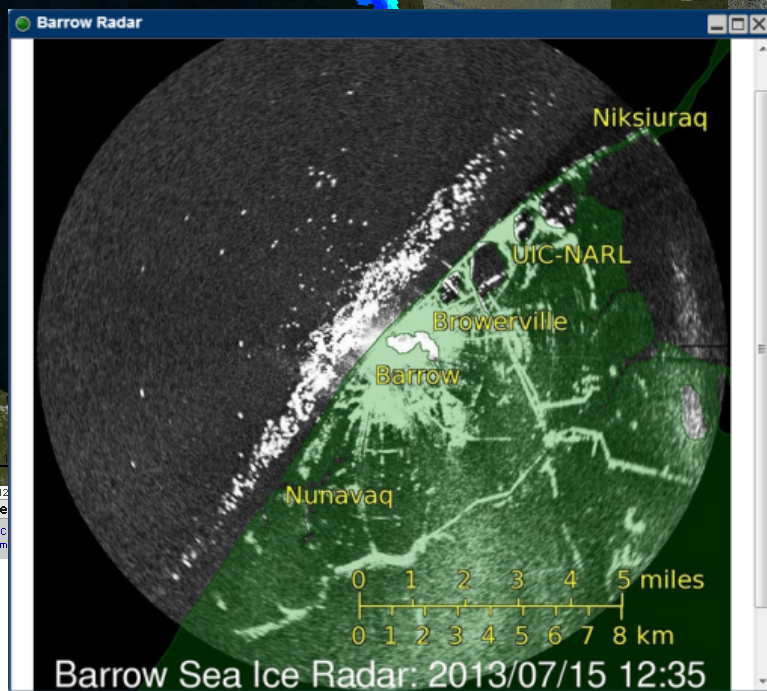
Sea Surface Currents (knots) - HF Radar (Demo from UAF, GINA)



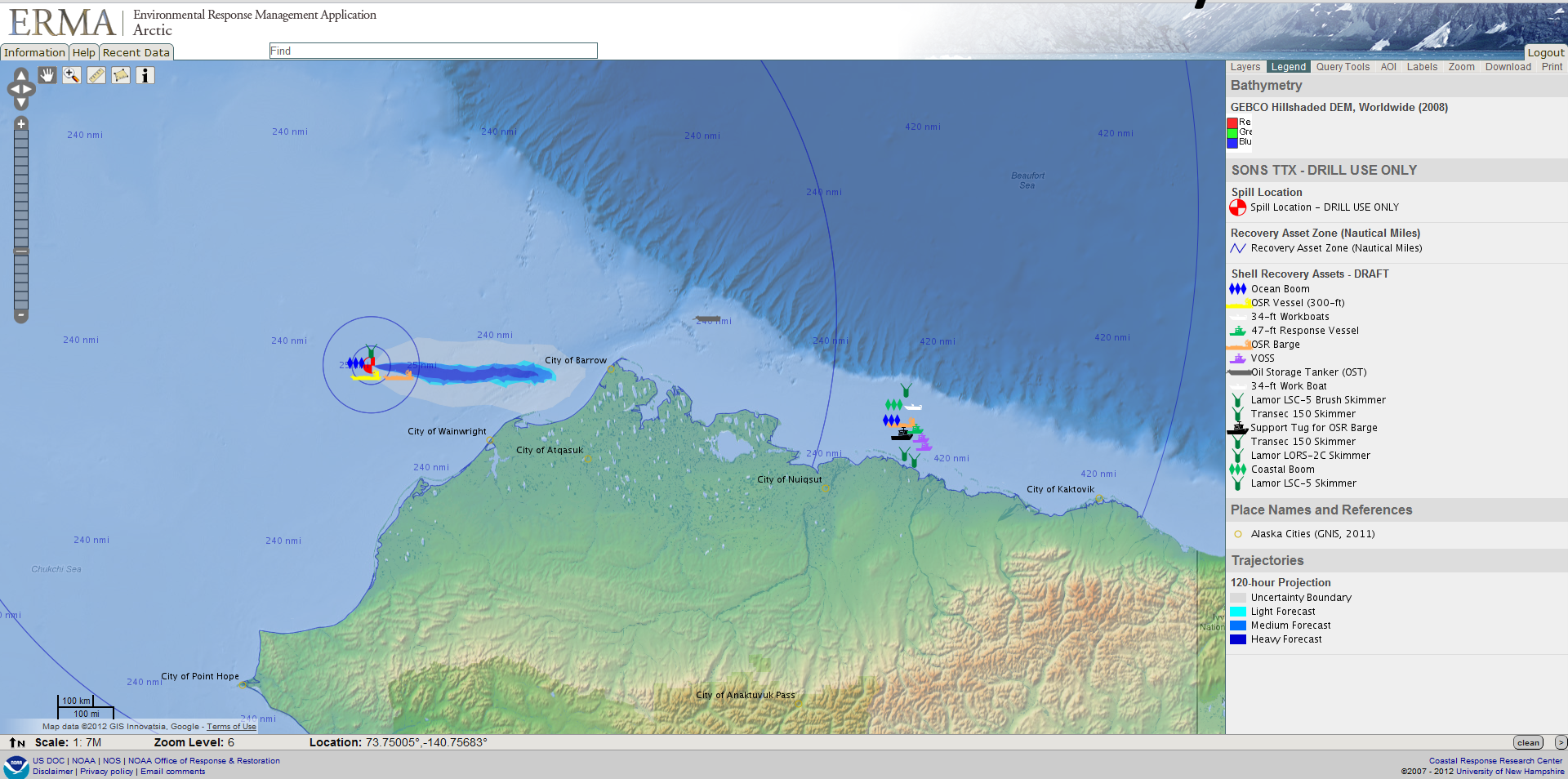
Ice Observations

Barrow Sea Ice Webcam (UAF, GINA)

Alaska (USA)



Incident: Exercise Only



Subsistence and Traditional Knowledge in ERMA

A series of communications....

- 1) Anchorage, 2011 – Major stakeholder workshop
- 2) Northwest Arctic Borough, 2012 –
All 11 Villages Participated
- 3) North Slope Borough (Barrow, AK), 2012 –
All 8 Villages Participated
- 4) University of Alaska Fairbanks, 2013 (Wainwright/Barrow)
- 5) Inuvialuit Region (Edmonton, AB), 2013

Current Activities

- Continue to work with Northern Communities to incorporate traditional knowledge
- EPPR Progress
 - Workshop in Edmonton, CA focused on Canadian data sets and Canadian scenarios
 - EPPR delegation invited. AC Spatial Data Infrastructure (SDI). Will be sharing data and metadata between ERMA and SDI, where appropriate.
 - AC Aviation Transportation Infrastructure Initiative AMATII.
 - DoD/NASA/NOAA Arctic Collaborative Environment
- NOAA/Environment Canada Project under a Memorandum of Understanding
- Stand Alone Arctic ERMA available
- Supported Kulluk Grounding and CANUSLANT Drill (Jun 2013)

Edmonton Workshop

Feb 12-13, 2013 · Edmonton, AB

Goals

- Bring together data providers/users to improve oil spill preparedness; identify data sources/priorities for Arctic ERMA; improve joint preparedness and response strategies in the Arctic

Scenarios

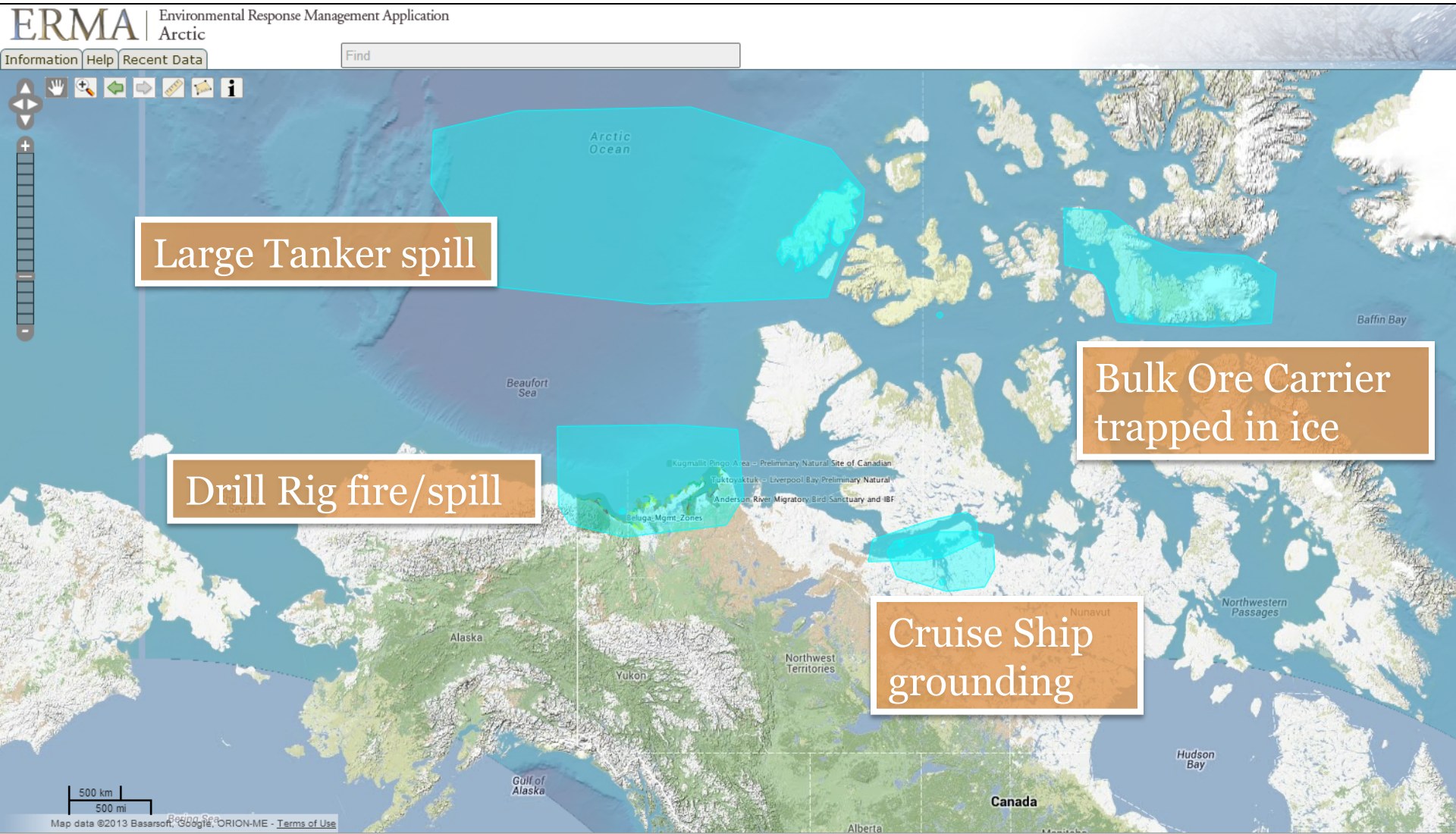
- Mass Search and Rescue (SAR), SAR/pollution in a sensitive area, burning offshore rig, large spill in open water (Beaufort Sea)

Participants

- Canadian and US organizations (government, Joint Secretariat, village elders, World Wildlife Fund, academia)



Edmonton Workshop Scenario Locations



Workshop Outcomes

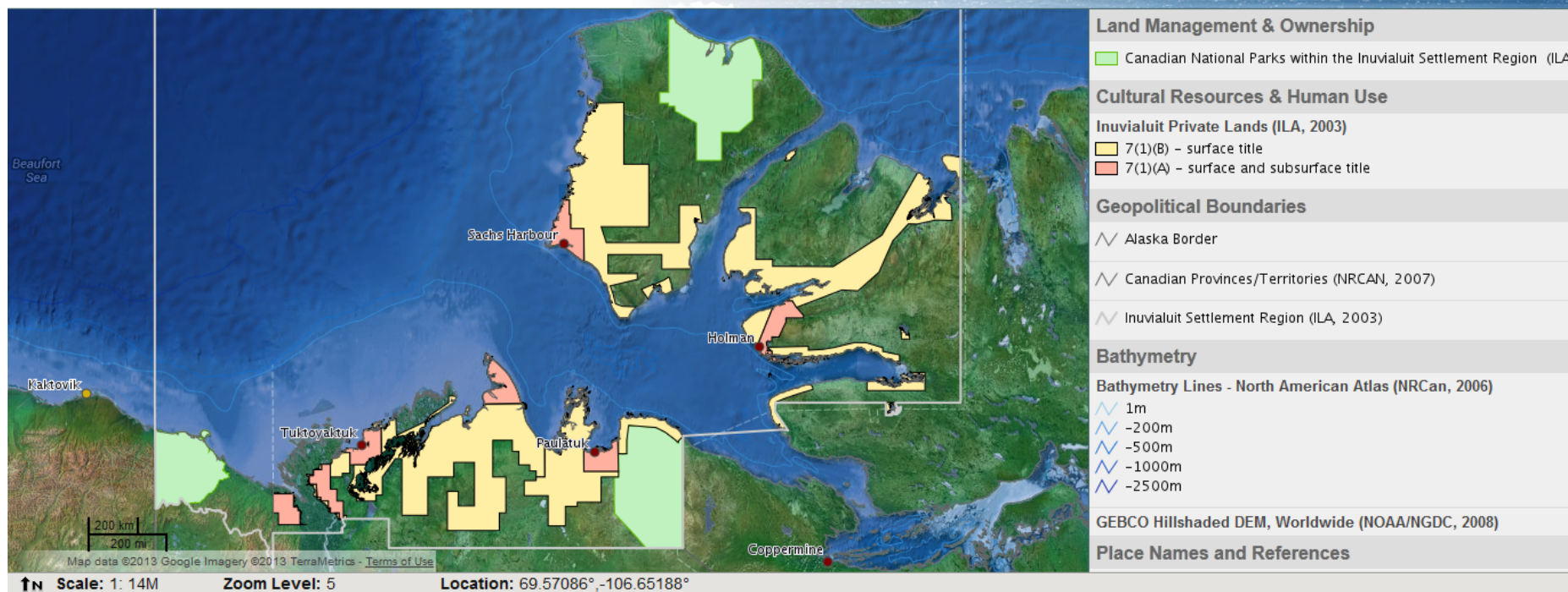
- Better understanding of NOAA and EC capabilities, systems, data management practices, and challenges
- Long list of high priority datasets, agreed to share between Canada and the US:
 - Oceanographic/meteorological/bathymetric
 - Infrastructure
 - Shoreline characteristics/sensitivities
- Established strong working relationships– ongoing discussions on data acquisition, protection, and community involvement
- Developing work plan with EC and Joint Secretariat

Workshop Materials Available at:

http://www.crrc.unh.edu/workshops/erma_canada/index.html

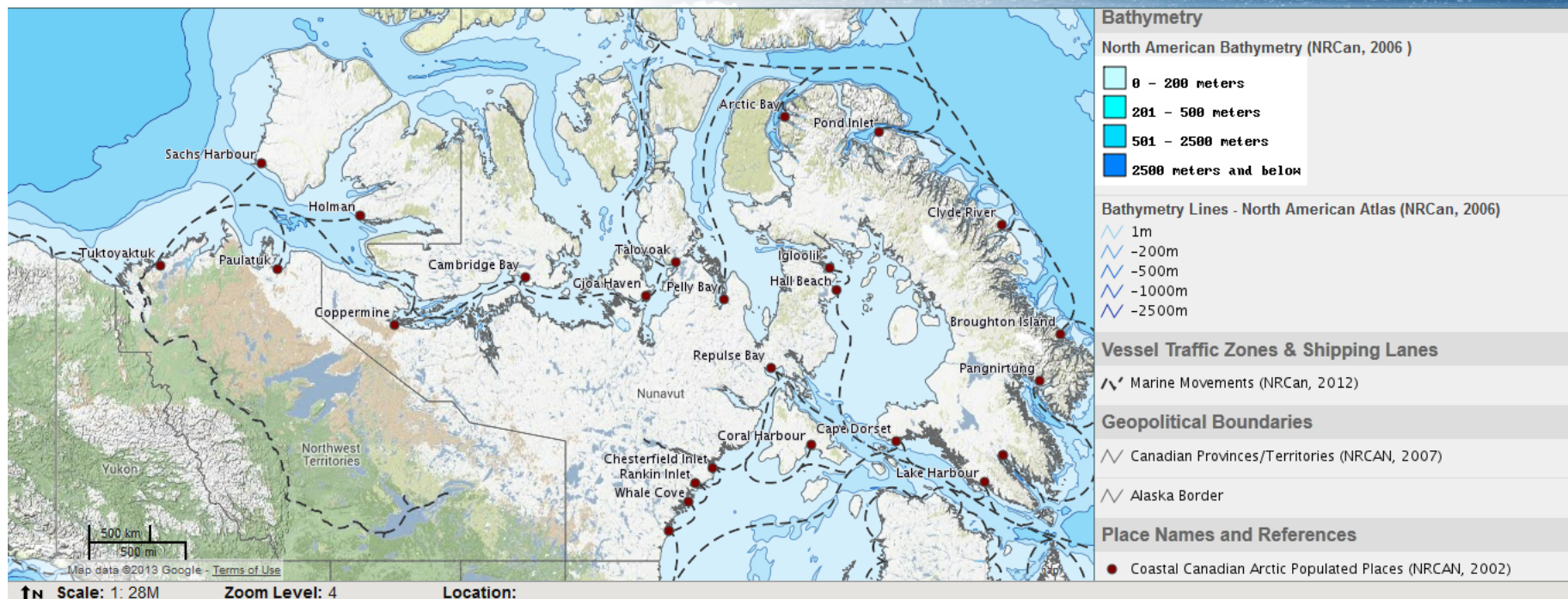
New Data since Edmonton Workshop

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Arctic



Canadian Data (NRCan) con't

ERMA | Environmental Response Management Application
Arctic



Alaska ShoreZone



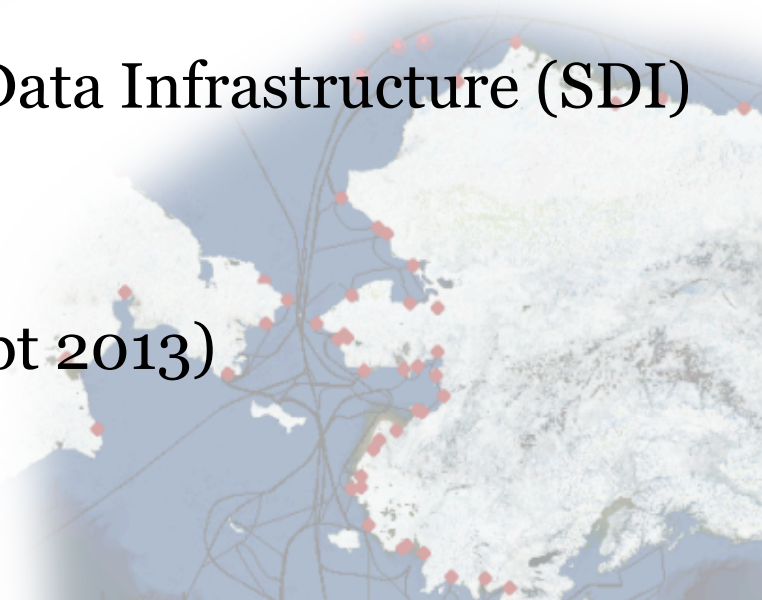
Stand Alone Arctic ERMA

- Allows the set-up of ERMA in a command post or remote location without Internet
- Test in “Arctic Shield” Exercise – Sept 2013 onboard *USCGC Healy*
- Arctic Shield Objectives:
 - Search above and below an ice flow, detect spilled oil, produce data to be used to plot the safest course to the spilled oil, deploy a brushed skimmer to recover the spilled oil and monitor the recovery operation (above and below the ice) to ensure complete recovery.
 - Evaluate use of UAS, UAV, Skimmer deployments, ROV, Ruttar Radar System, and ERMA.



Next Steps for Arctic ERMA

- Continue finding mechanisms for working with the Arctic Communities
- Developing best practices for data sharing with partners
 - Data sharing agreements and data management
 - Continue to test sharing of data among Canadian, and Shell mapping systems, as well as ACE, AOOS
- Incorporate AMATII data
- Perform Test case with AC Spatial Data Infrastructure (SDI) connections
 - Work toward a polar view
- Test Stand-Alone Arctic ERMA (Sept 2013)



Arctic ERMA Team

- NOAA:
 - Michele Jacobi
 - George Graettinger
 - Amy Merten
 - Mark Miller
 - Ben Shorr
 - Kari Sheets
- Genwest Systems:
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 - JB Huyett
 - Zach Winters-Staszak
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- I.M. Systems Group
 - Matt Dorsey
 - Laura Johnson
 - Jay Coady
- Development Team:
 - University of New Hampshire:
 - Nancy Kinner
 - Phillip Collins
 - Robert St. Lawrence
 - Kurt Schwehr
 - Allison Bailey, Sound GIS
 - Aaron Racicot, Z-Pulley
 - Chander Ganesan, OTG

Arctic ERMA Committee

Federal

NOAA

USCG HQ, Sector Anchorage, D17

DOI (BSEE, FWS, USGS)

US Arctic Research Commission

State of Alaska

Alaska DNR

Alaska DEC

Alaska DFG

Academia

University of New Hampshire

University of Alaska Fairbanks

University of Alaska Anchorage

Alaska Ocean Observing System

Industry

Shell

Alaska Clean Seas

ConocoPhillips

Local

North Slope Borough

Northwest Arctic Borough

Kaktovik

North Slope Science Initiative

Cook Inlet Regional Citizens Advisory Council

Oil Spill Recovery Institute

International

Environment Canada

Joint Secretariat

Arctic Council – EPPR Working Group

Thank You

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Web: <http://response.restoration.noaa.gov/arctic>

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